REMARKS

The pending application was filed on August 15, 2003 with claims 1-17. The Examiner issued a Non-Final Office Action dated November 1, 2004 rejecting claims 1-17. In particular, the Examiner rejected claims 15-17 under 35 U.S.C. §112, first paragraph, rejected claims 1, 2, 4, 6-9, and 11-17 under United States Patent No. 5,844,483 to *Munro*, and rejected claims 1, 3, 4, 6, 7, 15, and 16 under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,339,635 *Iwai et al.* The Examiner also rejected claims 1, 3-5, 15, and 16 under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent Application 10-196941 and rejected claims 1-17 under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent Application 10-196941 in view of PCT Published Application WO/98/25084 and *Munro*.

Claims 9-11, 13-15, and 17 remain pending in the patent application. Claims 1-8, 12, and 16 have been canceled without prejudice. In view of the arguments set forth below, claims 9-11, 13-15, and 17 are allowable, and the Examiner is respectfully requested to withdraw the rejections and issue a timely Notice of Allowance.

I. DRAWINGS

The Examiner objected to the drawings and stated that the drawings failed to comply with 37 CFR 1.84 (p)(5) because they do not include the following reference sign(s) mentioned in the description: "13" in Figure – only "12" is illustrated in Figure 3 – which is a

clear error as "13" should be associated with the injectors. In addition, the Examiner objected to the drawings because interface "38" was not illustrated. Appropriate correction has been made to Figure 3 regarding identification numerals 13 and 12, and interface 38 is indicated in Figure 3 as shown in the attachment to this submission. Therefore, the Examiner is respectfully requested to withdraw the objection.

The Examiner also objected to the drawings as failing to comply with 37 CFR 1.84(p)(5) because the C-stage shown in Figure 5 is not discussed. The reference to the "C-stage" has been removed from Figure 5, as shown in the attachment to this submission. Thus, the Examiner is respectfully requested to withdraw the objection.

II. CLAIMS 15-17 REJECTED UNDER 35 U.S.C. §112, FIRST PARAGRAPH

The Examiner rejected claims 15-17 under 35 U.S.C. §112, first paragraph as failing to comply with the enablement requirement. The Examiner argued that the claims include subject matter that was not described in the specification in such a way as to enable one skilled in the art to make or use the invention. In particular, the Examiner argued that the specification states that the interface is reduced between fuel and unfueled regions; however, a baseline configuration is not provided for in the specification. The Examiner concluded that it is not clear what type of prior art configuration is being compared to the invention such that the claimed reduction can occur.

The undersigned representative respectfully disagrees that claims 15-17 are not properly enabled. 35 U.S.C. §112, first paragraph states that "[t]he specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact term as to enable any person skilled in the art to which it pertains . . . to make and use the same . . . ." (emphasis added). The Specification of the instant invention, as claimed in claims 15-17, describes the invention in sufficient detail to enable one of ordinary skill in the art to make and use the invention. The Applicant bears no responsibility for describing the state of the prior art as the prior art is that state of knowledge of one of ordinary skill in the art. Rather, the Applicant is responsible for describing the invention to such an extent that one of ordinary skill in the art may make or use the invention. Furthermore, the objected to language regarding "reducing a size of an interface between fueled and unfueled regions in a fuel system" is a portion of the preamble of the claim, and therefore, is not a part of the claim itself and therefore not subject to the enablement requirement. The Specification describes the invention in clear, concise, and exact terms that enable one of ordinary skill in the art to make and use the invention. Therefore, the invention, as claimed in claims 15-17 is enabled, and the Examiner is respectfully requested to withdraw the rejection.

III. REJECTION OF CLAIMS 1, 2, 4, 6-9, AND 11-17 UNDER 35 U.S.C. §102(b)

The Examiner rejected claims 1, 2, 4, 6-9, and 11-17 under 35 U.S.C.(b) as being anticipated by United States Patent No. 5,884,483 to *Munro*. The Examiner argued that *Munro* discloses a fuel system for a turbine engine including a first premix injector assembly formed from at least four injectors and a second premix injector assembly formed from at least four injectors. The Examiner also argued that the fuel system is capable of emitting fuel into the turbine engine through the first premix injector assembly without simultaneously emitting fuel into the turbine engine through the second premix injector assembly. The Examiner also stated that it is well known in the art to use premix nozzles as injectors.

Claims 1-8, 12, and 16 have been canceled without prejudice, and claim 9 has been amended to include "at least one pilot nozzle, wherein the at least four injectors of the first premix injector assembly and the at least four injectors of the second premix injector assembly form a ring around the pilot nozzle." In stark contrast, *Munro* does not disclose a pilot nozzle positioned such that the first and second premix injector assemblies form a ring around the pilot nozzle. Rather, as shown in Figure 1 and discussed at column 2, lines 25-37, the fuel system is divided into main burners (22) and pilot burners (20). *Munro* discloses that the pilot burners together with the main burners form a ring. In contrast, claim 9 includes a pilot nozzle and first and second premix assemblies that form a ring around the pilot nozzle. Thus, *Munro* clearly does not anticipate amended claim 9.

In addition, *Munro* discloses a fuel system in which main burners and pilot nozzles are combined to form a single ring of nozzles. The ring consists of five pairs of pilot nozzles, each separated by a pair of main nozzles. Such a configuration includes at least ten interfaces between main burners and pilot nozzles. *Munro* discloses in column 2, at lines 28-30 that "the pilot burners are operated continuously and when necessary, such as during high power requirements, these are supplemented by the main burners . . . to increase the flow of fuel into the combustion chamber." Thus, in at least one embodiment, *Munro* discloses having at least ten interfaces between fueled regions (pilot burners) and unfueled regions (main burners). Such a configuration does not result in the low CO emissions found in the claimed invention. Thus, for at least these reasons, *Munro* does not anticipate 9, 11, or 13-17, and the Examiner is respectfully requested to withdraw the rejection.

IV. REJECTION OF CLAIMS 1, 3, 4, 6, 7, 15, AND 16 UNDER 35 U.S.C. §102(b)

The Examiner rejected claims 1, 3, 4, 6, 7, 15, and 16 under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,399,635 to *Iwai et al.* The Examiner stated that *Iwai et al.* discloses a fuel system for a turbine engine comprising first and second premix injector assemblies, as shown in Figure 8. The Examiner also rewrote all of the elements of the claims but did not provide any argument.

While *Iwai et al.* discloses a plurality of fuel nozzles, *Iwai et al.* does not disclose first and second premix injector assemblies and a pilot nozzle, wherein the first and second

premix injector assemblies form a ring around the pilot nozzle, as claimed in claims 9 and 15. In contrast, the configuration of fuel nozzles disclosed in *Iwai et al.*, as shown in Figure 9, which is a cross-sectional view taken at section line IX-IX in Figure 8, is not a ring formed from first and second premix injector assemblies. Rather, *Iwai et al.* discloses three nozzle assemblies positioned in a linear arrangement forming a rectangle. Thus, *Iwai et al.* does not disclose all of the elements of amended claims 9 and 15. As previously mentioned, claims 1, 3, 4, 6, 7, and 16 have been canceled without prejudice. Thus, for at least this reason, claim 15 is patentable, and the Examiner is respectfully requested to withdraw the rejection.

V. REJECTION OF CLAIMS 1-17 UNDER 35 U.S.C. §103(a)

The Examiner rejected claims 1-17 under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Application 10-196941 in view of PCT Published Application WO/98/25084 and *Munro*. The Examiner stated that the Japanese Patent Application 10-196941 discloses aspects of the claimed invention including a pilot burner but only discloses using six premixing nozzles rather than eight. The Examiner further stated that the PCT Published Application WO/98/25084 discloses using eight premixing nozzles. The Examiner argued that it would have been obvious to one of ordinary skill in the art to apply the staging concept of Japanese Patent Application 10-196941 to a premixing combustor with more burners. The Examiner also argued that *Munro* discloses premix nozzles positioned in a circle and collected in pairs. The Examiner concluded that it would have been obvious to one

of ordinary skill in the art to provide burners in pairs, as disclosed in *Munro*, with the disclosure of Japanese Patent Application 10-196941.

The undersigned representative respectfully disagrees that the above-mentioned references render claims 1-17 obvious and unpatentable. Claims 1-8, 12, and 16 have been canceled without prejudice, and claims 9 and 15 have been amended to include "at least one pilot nozzle, wherein the at least four injectors of the first premix injector assembly and the at least four injectors of the second premix injector assembly form a ring around the pilot nozzle." In contrast, the Japanese Patent Application 10-196941 does not disclose first and second injector assemblies formed from four injectors forming a ring around a center pilot. More specifically, Figures 3a-c of the Japanese Patent Application 10-196941 disclose various stages of staged fuel operation. Figure 3a discloses a fueled center nozzle and a fueled pair of outer nozzles. Figure 3b discloses a fueled center nozzle, a first fueled pair of outer nozzles and a second fueled pair of outer nozzles opposite to the first fueled pair, wherein the first and second fueled pair of nozzles are separated by unfueled nozzles. Figure 3c discloses that all six outer nozzles are all fueled and a center nozzle that is not fueled.

While the Japanese Patent Application 10-196941 discloses fuel staging, it does not disclose the claimed configuration that is able to reduce CO emissions by up to 50% over prior art configurations. Rather, the Japanese Patent Application 10-196941 only discloses conventional fuel staging. The Japanese Patent Application 10-196941 does not disclose fueling alternate pairs of fuel nozzles for minimizing the interface between fueled and

unfueled regions. Furthermore, the combination of the Japanese Patent Application 10-196941 with the PCT Published Application WO/98/25084 would not render the claims obvious. The PCT Published Application WO/98/25084 discloses eight nozzles positioned upstream of a combustion chamber, and the Japanese Patent Application 10-196941 discloses conventional fuel staging. However, neither cited reference discloses fueling first and second injector assemblies that form a ring around a pilot nozzle, wherein the first and second injectors are formed from four injectors each, such that the interface between fueled and unfueled regions is minimal. Rather, the Japanese Patent Application 10-196941 discloses conventional fuel staging in which various fuel nozzles are fueled while others are not. The specification of the Japanese Patent Application 10-196941 is directed to ignition detecting methods for gas turbines and does not disclose the configuration of the claimed invention for minimizing the interface between fueled and unfueled regions. In addition, the PCT Published Application WO/98/25084 discloses alternating outer fuel nozzles between being fueled and unfueled. Such a configuration does not result in the great CO emission reduction experienced by the claimed configuration. Thus, for at least this reason, claims 9-11, 13-15, and 17 are patentable, and the Examiner is respectfully requested to withdraw the rejection and issue a timely Notice of Allowance.

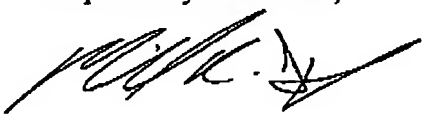
CONCLUSION

For at least the reasons given above, claims 9-11, 13-15, and 17 define patentable subject matter and are thus allowable. The undersigned representative thanks the Examiner for examining this application.

Should the Examiner believe that anything further is necessary in order to place the application in better condition for allowance, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

No fees are believed due; however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 50-0951.

Respectfully submitted,



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